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Larry Neil Mackey

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EXAMINER

JUSKA, CHERYL ANN

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LARRY NEIL MACKEY, JAMES DANIEL MILLER II,
MARK RYAN RICHARDS, JOHN GERHARD MICHAEL,
DAVID WILLIAM CABELL, and VALERIE ANN BAILEY

Appeal 2008-1716
Application 09/914,966
Technology Center 1700

Decided: May 29, 2008

Before CHUNG K. PAK, LINDA M. GAUDETTE, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 33-52. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).¹

¹ An oral hearing in this appeal was conducted on May 14, 2008.

We AFFIRM.

INTRODUCTION

Appellants claim a fiber comprising starch having an average fiber diameter of less than 10 μm (claim 1). The starch fiber may be used in make a variety of products (Spec. 25 and 26).

Claims 33, 50, 51, and 52 are illustrative:

33. A fiber comprising starch, wherein the fiber has an average fiber diameter of less than 10 μm .

50. The fiber according to Claim 33 wherein the fiber is a melt blown fiber.

51. The fiber according to Claim 33 wherein the fiber is a spunbond fiber.

52. A paper product comprising a fibrous structure, wherein the fibrous structure comprises a fiber comprising starch, wherein the fiber has an average fiber diameter of less than 10 μm .

The Examiner relies on the following prior art references as evidence of unpatentability:

Hernandez	4,243,480	Jan. 6, 1981
Buehler	5,516,815	May 14, 1996

The rejections as presented by the Examiner are as follows:

1. Claims 33-35 and 37-52 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hernandez.
2. Claim 36 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hernandez in view of Buehler.

Appellants separately argue independent claims 33, 50, 51, 52, and 36. Accordingly, with regard to rejection 1 above, we address Appellants' arguments and evidence regarding the rejection with respect to claims 33, 50, 51, and 52. With regard to rejection 2 above, we address Appellants' arguments and evidence regarding the rejection with respect to claim 36.

OPINION

35 U.S.C. § 103 REJECTION OVER HERNANDEZ CLAIMS 33 AND 52

Regarding claim 33, Appellants argue that Hernandez does not teach a fiber having a diameter of less than 10 μm as claimed (Br. 3 and 4). Specifically, Appellants contend that Hernandez is not capable (i.e., not enabled) of producing a fiber with an average diameter of less than 10 μm for the following reasons: (1) Hernandez uses a wet-spinning process which produces relatively large diameter fibers (i.e., greater than 50 μm); (2) Hernandez' smallest diameter taught is 65 μm ; (3) Hernandez' wet-spinning process does not provide the necessary attenuation force to form fibers with a diameter of less than 10 μm ; and (4) the Mackey Declaration supports Appellants' position that the Hernandez' disclosure is not enabled to produce fibers of diameter less than 10 μm (Br. 3 and 4). Appellants argue that their dry-spinning process, which is different than Hernandez' wet-spinning process, permits them to achieve a fiber diameter of less than 10 μm (Br. 4). Appellants contend that Hernandez' disclosure only indicates that it is obvious to try to make a fiber of less than 10 μm (Br. 4).

Regarding claim 52, Appellants argue that Hernandez does not teach a paper product having a starch fiber with a diameter of less than 10 μm (Br. 5).

We have considered all of Appellants' arguments and evidence, and we are unpersuaded for the reasons below.

We agree with the Examiner's positions in the Answer (Ans. 3-10). Accordingly, we adopt the Examiner's positions and responses to the various arguments and evidence as our own. We add the following for emphasis and completeness.

The Examiner bears the initial burden of establishing a *prima facie* case. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

The Examiner finds that Hernandez discloses all the features of claim 33, except for the average fiber diameter being less than 10 μm . However, the Examiner concludes that Hernandez would have suggested a diameter of less than 10 μm (e.g., 9.9 μm) based on the reasonable expectation that the suggested value is so close to the disclosed value that the same desirable properties would be expected in either case. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 782 (Fed. Cir. 1985).

We note that Appellants do not contest the Examiner's obviousness conclusion based on *Titanium Metals*. In fact, Appellants have made no arguments regarding the Examiner's obviousness conclusion based on the rationale set forth in *Titanium Metals*. Appellants' argument that Hernandez merely discloses that it would have been obvious to try to achieve a fiber diameter of less than 10 μm fails to show error in the Examiner's application of the *Titanium Metals* rationale in the § 103 rejection. Contrary to

Appellants' argument, we determine that the § 103 rejection is based on *Titanium Metals* and not an obvious to try standard.

In light of the above circumstances, we view Appellants to have conceded that the Examiner established a prima facie case of obviousness based on *Titanium Metals*. Accordingly, we view Appellants' arguments as rebutting the Examiner's prima facie case of obviousness. Specifically, Appellants attempt to rebut the Examiner's prima facie case, by arguing that Hernandez' wet-spinning process is not enabled to produce starch fibers having diameters of less than 10 μm .

One way an applicant may rebut a prima facie case of obviousness based on similarity to a known composition or device is by providing rebuttal evidence that shows that the prior art did not enable one skilled in the art to produce the now-claimed invention. *In re Kumar*, 418 F.3d 1361, 1368 (Fed. Cir. 2005). The Applicants have the burden of coming forward with evidence in rebuttal, when the prior art includes a method that appears, on its face, to be capable of producing the claimed composition. *Id.* Applicants' burden may be met by presenting sufficient reason or authority or evidence, on the facts of the case, to show that the prior art method would not produce or would not be expected to produce the claimed subject matter. *Id.*

Hernandez discloses a process for producing starch fibers and using the starch fibers in paper (Hernandez, col. 1, ll. 13-21). The starch fibers have a diameter from 10 to 500 μm which are produced by extruding a fiber solution through a die into a coagulation bath (Hernandez, col. 3, ll. 38-48).

Hernandez discloses that fibers may be formed by a variety of methods with the only requirement being that the fiber diameters range from 10 to 500 μm and the fibers be formed by extrusion (Hernandez, col. 3, ll. 58-64).

Hernandez discloses that the fiber production method includes extruding starch dispersion into a coagulating salt solution wherein the coagulation salt solution is moving to control fiber length and diameters or widths (Hernandez, col. 6, ll. 48-68). Generally extrusion dies with apertures of 10 to 500 μm in diameter are preferred, in order to produce fibers of the size required herein (i.e., 10 to 500 μm in diameter) (Hernandez, col. 7, ll. 5-13).

Hernandez further indicates that the interrelated variables of flow viscosities, viscosity of the starch dispersion, solids content of the starch dispersion, and coagulating salt type, in addition to, for example, the movement of the coagulating bath, may be used to control cross-sectional size (i.e., fiber diameter) and the length of the fibers (Hernandez, col. 7, ll. 14-23).

Though Appellants argue that Hernandez' wet-spinning method is incapable of producing a fiber having a diameter less than 10 μm , we find the arguments to be insufficient to prove that Hernandez' process would not be expected to produce a fiber having the claimed diameter. Attorney arguments cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602 (CCPA 1965).

The only evidence provided by Appellants that attempts to show that Hernandez' process is incapable of producing a fiber falling within the claimed diameter range is provided in the declaration of one of the inventors,

Larry Neil Mackey (i.e., the Mackey Declaration).² The Mackey Declaration merely provides conclusory statements regarding Hernandez' disclosures, Dr. Mackey's self-serving opinion that he could not make the claimed fiber using Hernandez' disclosure, and a statement that Hernandez' process would not be capable of producing fibers less than 10 μm in diameter because the starch dispersion "typically" contains 3-20 μm granules that would clog the required 10 μm aperture in the die used to form the fibers (Mackey Declaration 2 and 3). Dr. Mackey further states that Hernandez' attenuation forces are insufficient to attenuate the fiber to a diameter of less than 10 μm (Mackey Declaration 3). However, no data or other objective evidence has been provided comparing a fiber made using Hernandez' process to a fiber made using Appellants' process. Accordingly, we are unpersuaded by the statements made in the Mackey Declaration and we find Appellants' evidence insufficient to establish that Hernandez' wet-spinning process is incapable of producing a fiber with the claimed diameter.

The Mackey Declaration also indicates that Appellants "unexpectedly found" that extremely high attenuation forces needed to be applied on spun starch fibers to obtain fibers with less than 10 μm diameters (Mackey Declaration 3). Appellants appear to be arguing unexpected results. The Mackey Declaration provides an example of spinning a fiber with a 300 μm

² Appellants also refer to a National Jet Company website in their Reply Brief as providing evidence that Hernandez' process is incapable of producing the claimed fiber. However, this website was not cited to the Examiner and, in violation of rule 37 C.F.R. § 41.41(a)(2), is introduced for the first time on appeal in the Reply Brief. Accordingly, we shall not consider such evidence.

diameter and then attenuating the fiber using extremely high forces to form a fiber with a diameter of less than 10 μm (Mackey Declaration 3).

However, Hernandez discloses that the moving coagulation fluid (i.e., attenuation fluid) controls the cross-sectional size of the fibers (i.e., diameter). Accordingly, Appellants' "unexpected result" of applying a stronger attenuation force to the fiber appears to be a mere application of what is known in the art: applying a moving fluid to an extruded fiber will affect its diameter. Moreover, Appellants' showing of unexpected results suffers from the same deficiency as their attempt to show Hernandez' process is non-enabled for fibers with a diameter of 10 μm or less: no objective evidence has been provided comparing fibers produced using Hernandez' process to fibers produced using Appellants' process. We are unpersuaded by Appellants' unexpected results showing.

Regarding Appellants' arguments that Hernandez only discloses large diameter fibers (i.e., 65 μm in Hernandez' Example 1), Hernandez' disclosure that the fiber diameters may be 10 μm contradicts such an argument. Appellants' focus on one example in Hernandez' disclosure fails to account for Hernandez' teachings as a whole.

Though Appellants contend that their disclosed dry-spinning process permits the fibers to have diameters of less than 10 μm , we note that claim 33 is a product claim, not a process claim. As such, patentability is not based on the method of production. *In re Pilkington*, 411 F.2d 1345, 1348 (CCPA 1969). Accordingly, we are unpersuaded by Appellants' arguments regarding the process.

Appellants' argument regarding claim 52 is not persuasive because, as noted above, Hernandez would have suggested having a fiber diameter less than 10 μm . Moreover, Hernandez plainly states that the starch fibers are used in a paper product (Hernandez, col. 7, ll. 29-32).

For the above reasons, we sustain the Examiner's § 103 rejection of claims 33-35, 37-49, and 52 over Hernandez.

CLAIMS 50 AND 51

Appellants argue that Hernandez' fibers are produced using only a wet-spinning process, which produces fibers different than fibers produced using Appellants' melt-spinning process (i.e., melt blown fibers in claim 50) or spunbond process (i.e., spunbond fibers in claim 51) (Br. 4 and 5).

We understand the Examiner to be construing claims 50 and 51 as product-by-process claims because weight is only given to the product features implied by the process (Ans. 5 and 8). We agree with the Examiner's claim construction.

Product-by-process claims are not specifically discussed in the patent statute. The practice and governing law have developed in response to the need to enable an Applicant to claim an otherwise patentable product that resists definition by other than the process by which it is made. For this reason, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Thorpe*, 777 F.2d 695, 697 (Fed. Cir. 1985). If the product in a product-by-process claim is the same as or obvious from a product of the prior art,

the claim is unpatentable even though the prior product was made by a different process. *Id.* Once the PTO establishes a prima facie case that the prior art product appears to be identical, the burden shifts to Applicant to prove the prior art products do not necessarily or inherently possess the characteristics of the claimed product. *Id.* at 698.

Appellants argue the method limitation of melt-spinning or spunbonding used to form the melt-blown or spunbond fibers of claims 50 and 51, respectively, form a different product. However, the Examiner finds, and we agree, there is a reasonable basis to conclude that Hernandez' fibers possess the same chemical and structural requirements of the claimed fibers (Ans. 5). Accordingly, the burden shifted to Appellants to prove that Hernandez' wet-spun fibers do not inherently or necessarily possess the characteristics of the claimed product. *Thorpe*, 777 F.2d at 698.

However, Appellants have not provided any objective evidence or persuasive argument to prove that melt-blown fibers or spun-bond fibers are different than Hernandez' wet-spun fibers. Appellants' Specification indicates that wet-spun fibers are "coarse, typically having fiber diameters greater than 50 microns" and refers to the Hernandez patent used in the rejection (Spec. 2). However, such comparison deals only in generalities and what "typically" occurs. Appellants' Specification does not formally compare Hernandez' disclosed fibers to Appellants' "melt-blown" or "spunbonded" fibers.

Similarly, the Mackey Declaration merely makes conclusory statements regarding how Hernandez' fibers differ in size from Appellants'

claimed fibers. No objective evidence comparing Hernandez' fibers to Appellants' fibers has been provided.

Accordingly, based on the record before us, we determine that the Examiner established a prima facie case that Appellants' fibers would have been obvious over Hernandez' fibers. The burden shifted to Appellants to prove that Hernandez' fibers do not possess the characteristics of Appellants' claimed fibers. Appellants have failed to satisfy their burden.

Therefore, we sustain the Examiner's § 103 rejection of claims 50 and 51 over Hernandez.

35 U.S.C. § 103 REJECTION OVER HERNANDEZ IN VIEW OF BUEHLER

Appellants make the same argument and provide the same evidence previously made and provided regarding independent claim 33. Namely, Appellants argue that Hernandez fails to teach the starch fiber having a diameter of less than 10 μm (Br. 5 and 6). Appellants further argue that Buehler's disclosure does not cure Hernandez' deficiencies regarding the fiber diameter (Br. 6).

For the reasons discussed above regarding claim 33, we are unpersuaded by Appellants' argument and evidence regarding Hernandez' fiber diameter. Briefly, Hernandez would have suggested a diameter of less than 10 μm (e.g., 9.9 μm) based on the reasonable expectation that the suggested value is so close to the disclosed value that the same desirable

properties would be expected in either case. Appellants have not contested the Examiner's rationale based on the holding in *Titanium Metals*.

Accordingly, there is no fiber diameter deficiency in Hernandez that requires Buehler's disclosures to cure it. Appellants' arguments regarding claim 36 are unpersuasive.

We sustain the Examiner's § 103 rejection of claim 36 over Hernandez in view Buehler.

DECISION

The Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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sld

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